REMARKS

Claims 1-18 are pending in the application, with Claims 1, 4, 7, 10, 13 and 16 being independent claims. Claims 1-18 are rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Claims 1, 4, 7, 10, 13 and 16 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Schmidl (U.S. Patent No. 5,732,113) in view of Meehan (U.S. Patent Application Publication No. 2003/0119468 A1).

Applicants appreciate the apparent indication by the Examiner that Claims 2, 3, 5, 6, 8, 9, 11, 12, 14, 15, 17 and 18 contain allowable subject matter. Claims 2, 3, 5, 6, 8, 9, 11, 12, 14, 15, 17 and 18 are not rejected on prior art and are presumed to be allowable if rewritten to overcome the rejection under 35 U.S.C. § 101 in independent form including the limitations of the base claim and any intervening claims.

Applicants respectfully disagree with the Examiner regarding the rejection of Claims 1-18 under 35 U.S.C. § 101 because the Examiner has failed to properly analyze the claims in accordance with the October 26, 2005 Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility. Claims 1-18 recite statutory subject matter because, in accordance with the October 26, 2005 Interim Guidelines, they each fall within one of the four statutory categories, do not fall within judicial exception categories of nonstatutory subject matter, provide a practical application, and do not wholly preempt all substantial applications of a judicial exception.

The methods of Claims 1, 4 and 7 each recite, in part, generating a preamble sequence to decrease a peak-to-average power ratio (PAPR) through at least two antennas in an orthogonal frequency division multiplexing (OFDM) communication system, and the apparatuses of Claims 10, 13 and 16 each include at least one recited preamble sequence generator.

Claims 1, 4 and 7 are each directed to a practical application expressly recited in their preambles, and Claims 10, 13 and 16 are each directed to a practical application because they are

apparatus claims that each expressly recite structure. Furthermore, Claims 1, 4, 7, 10, 13 and 16 each produce useful, concrete, and tangible results because they each <u>decrease a peak-to-average power ratio (PAPR) through at least two antennas in an orthogonal frequency division multiplexing (OFDM) communication system</u>.

The present invention relates to an apparatus and method for generating a preamble sequence in an orthogonal frequency division multiplexing (OFDM) system.

The Examiner concedes that Schmidl fails to disclose recitations regarding the first preamble sequence and the second preamble sequence in Claims 1, 4, 7, 10, 13 and 16. The Examiner states that Meehan discloses these recitations in paragraph 6, and asserts that it would have been obvious to incorporate the preamble sequence generating and transmission method disclosed by Meehan in the invention of Schmidl.

Claim 1 recites, in part, generating a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data, the first preamble sequence being adapted to be transmitted via one of the at least two antennas; and generating a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data, the second preamble sequence being adapted to be transmitted via another one of the at least two antennas. Independent Claims 4, 7, 10, 13 and 16 include similar recitations.

Schmidl describes a method and apparatus that uses two OFDM training symbols to obtain full synchronization in less than two data frames. Meehan describes a method and system for enhancing the signal reception of a digital wireless receiver.

The Examiner relies on lines 6-8 of the abstract of Schmidl for satisfying the first preamble sequence recited in Claims 1 and 10. In these lines of the abstract, Schmidl only describes how a first OFDM training symbol has only even-numbered sub-carriers, and no odd-numbered sub-carriers. Nowhere in these lines does Schmidl suggest that odd data from

among a first preamble sequence corresponds to null data and even data from among a first preamble sequence corresponds to data at all.

The Examiner relies on lines 9-12 of the abstract of Schmidl for satisfying the second preamble sequence recited in Claims 1 and 10. In these lines of the abstract, Schmidl only describes how a second OFDM training symbol has even-numbered sub-carriers differentially modulated relative to those of the first OFDM training symbol by a predetermined sequence. Nowhere in these lines does Schmidl suggest that even data from among the second preamble sequence corresponds to null data and odd data from among the second preamble sequence corresponds to data.

The Examiner relies on paragraph 6, lines 1-9, of Meehan to satisfy the deficiencies of Schmidl. Meehan describes, in paragraph 6, the operation of processing a first predetermined portion of the preamble information with a first antenna to produce a first preamble sequence, and processing a second predetermined portion of the preamble information is processed to produce a second preamble sequence. The operation is clearly different from the operation recited in Claims 1, 4, 7, 10, 13 and 16.

Meehan nowhere suggests generating a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data, the first preamble sequence being adapted to be transmitted via one of the at least two antennas, and generating a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data.

In fact, Meehan expressly explains, in paragraph 24, how a preamble frame has a duration of 16 us (or 224 symbols) as set forth under the 802.11a standard. This preamble consists of 10 short OFDM symbols and 2 long OFDM symbols. Each short OFDM symbol (0.8 us) consists of 12 constellation symbols, and each long OFDM symbol (3.2 us) consists of 52 constellation symbols. Upon receiving the preamble information, the first antenna 12 calculates the mean-squared error (MSE) of the first 84 symbols (7 short OFDM symbols) of the preamble by

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comparing the actual preamble sequence stored in the memory 20. The input is then switched to the second antenna 14, which calculates the MSE of the next 88 symbols (3 short OFDM symbols and 1 long OFDM symbol) of the preamble. The remaining 52 symbols (1 long OFDM symbol) are reserved in case the antenna must be switched back again. After obtaining the output MSE for each antenna, the antenna with the lower MSE is selected for receiving and processing the rest of incoming data packets.

More particularly, Schmidl, Meehan, or any combination thereof, fails to teach or reasonably suggest generating a first preamble sequence in which odd data of the preamble sequence becomes null data and even data of the preamble sequence becomes data, the first preamble sequence being adapted to be transmitted via one of the at least two antennas; and generating a second preamble sequence in which the even data of the preamble sequence becomes null data and the odd data of the preamble sequence becomes data, the second preamble sequence being adapted to be transmitted via another one of the at least two antennas, as recited in Claim 1. Schmidl, Meehan, or any combination thereof, also fails to teach or reasonably suggest similar recitations in independent Claims 4, 7, 10, 13 and 16.

Accordingly, independent Claims 1, 4, 7, 10, 13 and 16 are allowable over Schmidl, Meehan, or any combination thereof.

While not conceding the patentability of the dependent claims, *per se*, Claims 2, 3, 5, 6, 8, 9, 11, 12, 14, 15, 17 and 18 are allowable for at least the above reasons.

Accordingly, all of the claims pending in the Application, namely, Claims 1-18, are in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,

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